

REMARKS/ARGUMENTS

Claims 1-17 were previously pending in the application. Claims 1, 2, 9, 16, and 17 are amended herein. The Applicant hereby requests further examination and reconsideration of the application in view of these remarks.

On page 2 of the office action, the Examiner objected to claims 1, 9, and 16 due to various informalities. The Applicant has amended these claims substantially as suggested by the Examiner and believes that these amendments are sufficient to overcome these objections.

On page 2 of the office action, the Examiner also rejected claims 1-4, 7-12, and 15-17 under 35 U.S.C. 101 as being directed to non-statutory subject matter. The Applicant has amended independent claims 1, 9, and 16 in a manner believed to overcome this rejection and has amended dependent claims 2 and 17 to conform to the amendments to parent claims 1 and 16, respectively. In particular, claims 1, 9, and 16 now all recite, *inter alia*, that (i) the encoded data is received, (ii) the maximum combined probability A_j^k is used to calculate one or more log-likelihood values for one or more blocks of samples corresponding to the data, and (iii) the encoded data is detected or decoded using the one or more log-likelihood values. The detection or decoding of the encoded data is clearly a "tangible result" sufficient to overcome the non-statutory subject matter rejection of claims 1, 9, and 16.

On page 3 of the office action, the Examiner rejected claims 16 and 17 under 35 U.S.C. 101 as being directed to non-statutory subject matter because:

Applicant claims a machine-readable medium, wherein the medium can be a transmission medium. On paragraph 45, applicant claims a machine-readable medium "any other machine-readable storage medium ... transmitted over some transmission medium such as over electrical wiring or cabling, through fiber optics, or via electromagnetic radiation."

The foregoing language that the Examiner cites, which apparently now forms the basis for the Examiner's rejections of claims 16 and 17 under Section 101, was previously deleted from the specification in the Applicant's Amendment in response to the office action of 5/17/06. Since the language complained of by the Examiner no longer exists in the specification, the Applicant respectfully submits that the rejection of claims 16 and 17 as directed to non-statutory subject matter is in error and should be withdrawn.

On page 4 of the office action, the Examiner rejected claims 16 and 17 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement, alleging that "[t]he claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention." The Applicant respectfully submits that this is simply not true. Indeed, the specification paragraph beginning at p. 9, line 5, states:

The present invention can be embodied in the form of methods and apparatuses for practicing those methods. The present invention can also be embodied in the form of program code embodied in tangible media, such as floppy diskettes, CD-ROMs, hard drives, or any other machine-readable storage medium, wherein, when the program code is loaded into and executed by a machine, such as a computer, the machine becomes an apparatus for practicing the invention. The present invention can also be embodied in the form of program code, for example, stored in a storage medium and loaded into and/or executed by a machine, wherein, when the program code is loaded into and executed by a machine, such as a computer, the machine becomes an apparatus for practicing the invention. When implemented on a general-purpose processor, the program code segments combine with the processor to provide a unique device that operates analogously to specific logic circuits.

The disclosure of the foregoing paragraph, in conjunction with the flowchart of FIG. 4 and corresponding description at p. 7, line 22, to p. 8, line 13, clearly would enable one skilled in the art to practice the

subject matter claimed in claims 16 and 17.

On page 4 of the office action, the Examiner alleges that “[t]he amendment made to the specification raises new matter issue since it changes the scope of the invention as it was originally disclosed in the disclosure of the invention,” citing MPEP 608.04. However, the Applicant did not add any new matter in the Applicant’s last Amendment, but, in fact, deleted subject matter from the only specification paragraph that was amended, beginning at p. 9, line 5, per the following marked-up version of this paragraph:

The present invention can be embodied in the form of methods and apparatuses for practicing those methods. The present invention can also be embodied in the form of program code embodied in tangible media, such as floppy diskettes, CD-ROMs, hard drives, or any other machine-readable storage medium, wherein, when the program code is loaded into and executed by a machine, such as a computer, the machine becomes an apparatus for practicing the invention. The present invention can also be embodied in the form of program code, for example, ~~whether~~ stored in a storage medium and ~~[[,]] loaded into and/or executed by a machine, or transmitted over some transmission medium, such as over electrical wiring or cabling, through fiber optics, or via electromagnetic radiation,~~ wherein, when the program code is loaded into and executed by a machine, such as a computer, the machine becomes an apparatus for practicing the invention. When implemented on a general-purpose processor, the program code segments combine with the processor to provide a unique device that operates analogously to specific logic circuits.

Since no new matter has ever been introduced into the specification through any of Applicant’s amendments, the Applicant respectfully submits that the Examiner’s “new matter” allegation is in error and should be withdrawn.

On page 4 of the office action, the Examiner rejected claims 1-4, 7-12, and 15-17 under 35 U.S.C. 103(a) as being unpatentable over U.S. Application No. 2002/0029362 (“Stephen”) in view of U.S. Patent No. 5,600,664 (“Hayashi”) and the instant application’s disclosed prior art.

For the following reasons, the Applicant submits that claims 1-4, 7-12, and 15-17 are allowable over the cited references.

Claim 1 recites, *inter alia*, that:

updating the forward probability for a state in step (c) comprises the step of selecting the maximum combined probability for transitions to the current state, given by:

$$A_j^k = \max_{i=0,1,\dots,7}^* (A_i^{k-N} + \tilde{\Gamma}_{i,j}^k) \quad \text{for } j = 0, 1, \dots, M-1,$$

where $\tilde{\Gamma}_{i,j}^k$ is the combined probability obtained by adding N individual branch metrics from time $k-N$ to time k in an original trellis, and M is the number of states.

The Examiner acknowledges that Stephen and Hayashi fail to disclose the foregoing features of claim 1, which the Examiner has previously acknowledged in indicating the subject matter of claim 1 as allowable. The Examiner now attempts to supply these missing teachings by alleging that “[t]he instant application’s disclosed prior art teaches updating the forward probability for a state comprises selecting the maximum combined probability for transitions to the current state given by equations 8-9 (Pg. 3).” This statement is a mischaracterization of the teachings of the instant application’s disclosed prior art. Equations (8) and (9), reproduced below, do not disclose selecting a maximum combined probability for two or more transitions to the current state, as the Examiner claims, but rather, merely a maximum probability for a single transition to the current state:

$$A_j^k = \max_{i \in S}^* (A_i^{k-1} + \Gamma_{i,j}^k) \quad (8)$$

$$B_i^{k-1} = \max_{j \in S} (B_j^{k-1} + \Gamma_{i,j}^k) \quad (9)$$


Note that claim 1 recites that N must be "an integer greater than 1," i.e., to account for more than one transition. In equations (8) and (9), the superscript to the first term in the \max^* operand is only $k-1$, not $k-N$, indicating only a single transition. No merged or combined trellis is ever discussed in the Applicant's disclosed prior art, and therefore, equations (8) and (9) cannot possibly disclose the selection of any maximum combined probability. In fact, the modification of equations (8) and (9) to conform to a merged-trellis structure is disclosed as part of the *Detailed Description* section of the specification, e.g., at p. 5, line 27, to p. 6, line 22 – not in the *Background of the Invention* section of the specification. The Examiner is therefore using the Applicant's own invention to supply missing teachings for this obviousness rejection. It is well-established case law that "[o]bviousness may not be established using hindsight or in view of the teachings or suggestions of the inventor." *W.L. Gore & Assocs., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1551, 1553, 220 U.S.P.Q. (BNA) 303, 311, 312-13 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984). Because none of the cited references discloses a step of "selecting the maximum combined probability for transitions to the current state," no combination of the references could possibly render obvious claim 1.

For all these reasons, the Applicant submits that claim 1 is allowable over the cited references. For similar reasons, the Applicant submits that claims 9 and 16 are also allowable over the cited references. Since the rest of the claims depend directly or indirectly from claims 1, 9, or 16, it is further submitted that those claims are also allowable over the cited references. The Applicant submits therefore that the rejections of claims under Section 103 have been overcome.

In view of the above remarks, the Applicant believes that all of the now-pending claims are in condition for allowance. Therefore, the Applicant believes that the entire application is now in condition for allowance, and early and favorable action is respectfully solicited.

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Respectfully submitted,


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